



Mr. Mark Verhey Humboldt County Health Department Division of Environmental Health 100 H Street, Suite 100 Eureka, California 95501 July 6, 2005

Re: Second Quarter 2005 Groundwater Monitoring Report &

Workplan for Evaluation of Shallow Water Bearing Zone and Vertical Delineation

Former Cash Oil Fortuna 409 South Fortuna Boulevard, Fortuna, CA HCDEH LOP No. 12652 Blue Rock Project No. NC-004

Dear Mr. Verhey,

This report presents the results of the second quarter 2005 groundwater monitoring activities at 409 South Fortuna Boulevard, Fortuna, Humboldt County, California (site) (Figure 1), and was prepared for Clyde Harvey by Blue Rock Environmental, Inc. (Blue Rock).

The groundwater monitoring section is followed by a workplan for evaluation of a shallow water bearing zone and vertical gradients. The Humboldt County Division of Environmental Health (HCDEH) earlier requested this type of evaluation in their letter dated April 12, 2005, and reiterated the same request in a meeting on June 2, 2005 between Blue Rock and the HCDEH.

Background

Site Description

The former Cash Oil Service Station is located on the corner of South Fortuna Boulevard and Newburg Road in Fortuna, California. The site is located in an area of low topographic relief and is considered part of the Eel River flood plain (Figure 1). The site formerly contained one single-story building with four pump islands that were used to dispense unleaded gasoline from four fiberglass lined, single walled steel 10,000-gallon underground storage tanks (UST), three in Complex #1 and one in Complex #2 (Figure 2).

Site History

On May 8, 1997, as part of a UST system upgrade, Clearwater Group (Clearwater) observed Tank Liners Inc. drill three soil borings B-1, B-2, and B-3 for collection of soil and groundwater samples as required by the HCDEH (Figure 2). Laboratory analytical results from the soil and groundwater samples indicated that an unauthorized release of petroleum had occurred from the UST system.

In May 2000, Cash Oil Company sold the property and upgraded UST system to Golden Gate Petroleum of Martinez, California.

In August 2004, Beacom Construction (Beacom) of Fortuna, California, on behalf of Golden Gate Petroleum, removed the (4) 10,000-gallon USTs and associated fuel dispensers from the site. The site is being redeveloped as a commercial property.

Site Investigation History

Subsurface investigation activities have been ongoing at the site since 2000. A total of approximately 12 soil borings (B-1 through B-12) have been drilled and eight monitoring wells (MW-1 through MW-8) have been installed at the site (Figure 2). Groundwater monitoring has been ongoing since the wells were installed. Soil and groundwater sample data are summarized on Tables 1 and 2, respectively.

Summary of Contaminant Type

The predominant contaminant types that have been detected in the subsurface include total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and the fuel oxygenates MTBE, TBA, ETBE, and TAME.

Summary of Hydrogeology

The first couple feet below grade consists of baserock fill. The site is underlain by sediments characterized as elastic clayey silt (MH) from ~2 feet bgs to depth of ~17 feet bgs, which is underlain by gravel (GW) with a lesser amount of sand (SW) to a depth of ~20 feet bgs (the maximum depth explored). The laterally continuous clayey silt is often damp to moist, but water has not entered borings from this unit at consistent depths. Water has been encountered at different depths in this unit at different times of the year. It has often not been encountered in borings/wells until depths of at least 10 feet bgs and water is often encountered at a depth of ~18 feet in the gravel that rapidly rises several feet, except for borings B-4 through B-11. These borings were drilled in March 2000, and water was encountered at depths ranging between 2.5 to 7 feet bgs in soil described as elastic clayey silt.

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During excavation activities in August 2004, Blue Rock observed a moist horizon of the elastic clayey silt at a depth of ~4 feet bgs, which was ~1 foot thick. However, no water entered the excavation from this horizon over the course of two days, and no water was observed dripping or seeping down the sidewall from that horizon. The bottom of the excavation was an irregular surface, with final depths ranging between 6 and 18 feet bgs. No groundwater was observed in the excavation, either collected in the bottom or seeping down sidewalls, except for depths of ~18 feet bgs where the top of the gravel was exposed. Excavation photographs were provided to the HCDEH with the *Remedial Report of Findings*, dated September 1, 2004.

Based on these observations, seasonal occurrence of perched water may occur in an elastic clayey silt, ~1 foot thick, at a depth of ~4 feet bgs. This likely results from the seasonal precipitation infiltrating downward, and therefore, this is why water was encountered at that relatively shallow depths depth in the spring (i.e. March 2000). Yet, this perched water zone appears to dry out and does not yield water in the summer (i.e. August 2004 excavation).

The behavior of the water in the gravel (i.e. rapidly rising after encountering it) suggests this unit may be confined. Blue Rock reviewed past potentiometric maps, and found that the interpreted potentiometric surface forms a smooth surface with flow toward the west-northwest (consistent with topography), if MW-7 data is excluded as anomalous (Figure 3).

Summary of Remedial Efforts

In August of 2004, Blue Rock supervised Van Meter Construction of Redway, California excavate 2,034 tons of petroleum contaminated soil from the vicinity of the former UST fuel system. The lateral extent of the excavation is shown on Figure 2, and the depth of the excavation was irregular, ranging from approximately 6 to 18 feet bgs. The remedial soil excavation removed an estimated 2,109 pounds (346 gallons) of hydrocarbons from the site. Blue Rock mixed approximately 750 pounds of ORC into the excavation backfill. Monitoring well MW-3 was destroyed during remedial excavation activities. Remedial activities are presented in Blue Rock's *Remedial Report of Findings*, dated September 1, 2004.

Groundwater Monitoring – Second Quarter 2005

Groundwater Monitoring Field and Laboratory Activities

On June 13, 2005, seven wells (MW-1, MW-2, MW-4 through MW-8) were monitored. Monitoring well MW-16 from the Fortuna Beacon (Humboldt Petroleum) site was also gauged for groundwater gradient data.

Prior to sampling, an electronic water level indicator was used to gauge depth to water in each well, accurate to within ±0.01-foot. All wells were checked for the presence of light non-aqueous phase liquid (LNAPL) petroleum prior to purging. No measurable thicknesses of LNAPL were observed on groundwater in any of the wells.

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In preparation for sampling, the wells were purged of groundwater until sampling parameters (temperature, pH, and conductivity) stabilized. Dissolved oxygen measurements were collected to monitor the effectiveness of the dissolved-phase hydrocarbon cleanup by ORC.

Following recovery of water levels to at least 80% of their static levels in the other wells, groundwater samples were collected from the wells using disposable polyethylene bailers and transferred to laboratory supplied containers. Sample containers were labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory.

Purging instruments were cleaned between use by an Alconox® wash followed by double rinse in clean tap water to prevent cross-contamination. Purge and rinseate water was stored on-site in labeled 55-gallon drums pending future removal and disposal.

Groundwater monitoring and well purging information is presented on Gauge Data/Purge Calculations and Purge Data sheets (attached).

Groundwater samples were analyzed by Kiff Analytical, a DHS-certified laboratory, located in Davis, California, for the following analytes:

TPHg, BTEX, and MTBE by EPA Method 5030/8260B.

Groundwater Flow Direction and Gradient

Static groundwater in the wells was present beneath the site at depths ranging from approximately 3.87 (MW-7) to 12.14 (MW-1) feet bgs. Gauging data, combined with well elevation data, were used to calculate groundwater elevation, and to generate a groundwater elevation and gradient map. The groundwater flow direction was primarily calculated to be toward the west at a gradient of 0.017 ft/ft (with data from MW-7 omitted as anomalously high) (Figure 3). The groundwater gradient and flow direction are consistent with previous measurements.

Groundwater Contaminant Analytical Results

LNAPL: None

TPHg concentration: <50 μg/L (MW-2, MW-4, MW-5, MW-6, MW-8) to 3,700 μg/L (MW-

1)

Benzene concentration: <0.50 μg/L (MW-2, MW-4, MW-5, MW-6, MW-7, MW-8) to 4.8

μg/L (MW-1)

MTBE Concentration: <0.50 μg/L (MW-2, MW-5, MW-6) to 190 μg/L (MW-1)
Dissolved Oxygen: 3.16 (mg/L) (MW-1), 4.25 mg/L (MW-2), 0.72 mg/L (MW-8)

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Groundwater sample analytical results are shown graphically on Figures 4a, 4b, and 4c. Cumulative groundwater sample analytical results are summarized in Table 2, intrinsic bioremediation data are summarized in Table 3 and well construction details are summarized in Table 4. Copies of the laboratory report and chain-of-custody form are attached.

Workplan for Evaluation of Shallow Water Bearing Zone and Vertical Delineation

The purpose of this phase of work is to (1) evaluate the potential and nature of a perched water bearing zone (A Zone) at approximately 5 to 10 feet bgs and its relationship to a lower zone (B Zone) from approximately 15 to 20 feet bgs, and (2) evaluate the vertical extent of dissolved-phase impacts below 20 feet bgs.

In order to accomplish the first goal, a set of three nested wells is proposed, as this will facilitate calculation of lateral groundwater flow in each zone and facilitate measurement of potential vertical gradients between the A and B zones. It should be noted that existing wells are generally screened from 5 to 20 feet bgs, and, therefore, are not suitable for this evaluation, as they potentially cross the two depth intervals interest. Blue Rock proposes the installation three nested well sets (well locations shown on Figure 5 and tentative well construction is shown on Figure 6):

- PMW-9A and PMW-9B: Located along the western edge of the site, in native material between the site border and the remedial excavation.
- PMW-10A and PMW-10B: Located between MW-7 and MW-5, in native material outside of the remedial excavation.
- PMW-11A and PMW-11B: Located near B-6, in native material between the site border and the remedial excavation.

The nested wells will be installed in individual boreholes separately laterally by approximately 5 feet. The nested wells screens will be separated vertically by at least 5 feet, so that potential vertical gradients between the two zones can be evaluated.

In order to accomplish the second goal, collection of deeper grab groundwater samples is proposed. Grab groundwater samples will tentatively be collected from a depth interval of about 35 to 40 feet bgs. The proposed drilling locations are shown on Figure 5:

- HP-9: Located along the western edge of the site, in native material between the site border and the remedial excavation near PMW-9A and 9B.
- HP-10: Located between MW-7 and MW-5, in native material outside of the remedial excavation, near PMW-10A and PMW-10B.
- HP-11: Located near B-6, in native material between the site border and the remedial excavation, near PMW-11A and PMW-11B.

Drilling, Soil Sampling, and Installation of Nested Well Sets

Prior to drilling, Blue Rock will prepare site specific Health and Safety Plan and obtain well installation permits from HCDEH. Prior to conducting and drilling, the site will be marked by Underground Service Alert to identify utilities leading to the site. Additionally, a private utility locator may be employed to clear exact drilling locations.

A Blue Rock scientist, working under the supervision of a Blue Rock California Professional Geologist, will supervise all drilling and well installation activities. Drilling will be performed by a C-57 licensed driller using a truck-mounted rill-rig equipped with 8-inch diameter hollow-stem augers. During drilling, soil samples will be collected at five-foot intervals in a California Modified Split-Spoon sampler lined with clean, brass tubes. The Blue Rock scientist will log soil types in accordance with the Unified Soil Classification System. Additionally, soil samples will be screened for the presence of volatile petroleum hydrocarbon vapors with a photo-ionizing organic vapor meter (OVM).

It is estimated that up to three soil samples will be retained from each nested well location for laboratory analysis. These samples will be selected based on elevated OVM readings or field indications of contamination; however, the final set of samples selected will also represent a meaningful vertical array of samples from each boring. These samples will be covered with Teflon lined plastic caps, labeled, documented on a chain-of custody form, and placed on ice in a cooler for transport to the project laboratory.

Blue Rock will supervise construction of monitoring wells in the boreholes. Well screens will target two zones: the A zone wells will be screened from 3 to 10 feet bgs, and the B zone wells will be screened from 15 to 20 feet bgs. The wells will be constructed of clean, flush-threaded, two-inch diameter PVC well materials. Well screen will consist of 0.01-inch slot. A filter pack of Lonestar #2/12 sand will extend from the bottom of each boring to one feet above the screened interval. The filter pack will be sealed by a one-foot layer of hydrated bentonite. The remaining annular space will be filled with cement and a tamper-resistant box will be concreted in place over the wellhead. Tentative well construction details are shown on Figure 6.

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Well Development and Survey

The wells will be developed by surging and bailing no earlier than 72 hours following installation. Development will involve the removal of water from each well until such time that it is relatively free of sediment, and pH, temperature, and conductivity parameters have stabilized. It is anticipated that the water volume removed will not exceed 10 saturated casing volumes. The new wells and sampling points will be surveyed according to GeoTracker requirements.

Well Sampling

Following drilling and well installation activities, Blue Rock will incorporate the new wells into the existing quarterly groundwater monitoring program for the site.

Prior to purging or sampling, an electronic water level indicator accurate to within ± 0.01 -ft will be used to gauge depth to water in each well. All wells will also be checked for the presence of light non-aqueous phase liquids (LNAPLs) prior to sampling.

The wells will be purged of groundwater until such time that the parameters pH, temperature, and conductivity have stabilized. At a minimum, parameter measurements will be taken at every saturated well casing volume purged. A minimum of three saturated casing volumes will be purged, unless the well goes dry, but no more than five saturated casings volumes will be removed.

Following recovery of water columns to at least 80% of their static levels, or after passage of two hours (if designated recovery levels have not occurred), groundwater samples will be collected from the monitoring wells using polyethylene sampling bailers. Samples will be decanted into laboratory supplied containers, labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory.

Vertical Delineation Drilling and Grab Groundwater Sampling

Drilling and sampling activities for vertical delineation of groundwater impacts will be accomplished using a direct-push drill-rig, equipped with 2-inch diameter drill-rod, to collect grab groundwater samples from discrete depths. Again, drilling will be performed by a C-57 licensed driller under the supervision of a Blue Rock scientist. Because the deepest screened wells at the site are only 20 feet bgs, discrete depths for vertical delineation will be deeper than those wells. Based on information from the nearby site at 390 South Fortuna Boulevard, soil types between approximately 25 and 40 feet bgs have been described as sands and gravels, with intercalated fine- and coarse-grained soil present from approximately 20 to 25 feet bgs. Therefore, a discrete depth interval of approximately 35 to 40 feet bgs will be targeted for grab groundwater sampling.

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The deeper groundwater samples will be obtained by driving an expendable sampling tip, coupled to tubing back to the surface, to the desired sampling depth. At the desired depth, the tip will be retracted slightly to expose the screened portion of the tool. Grab groundwater samples will then be collected in appropriate containers, labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory.

Soil and Groundwater Sample Analyses

The soil samples (approx. 9 total) will be analyzed by a California DHS-certified laboratory for:

· TPHg, BTEX, and MTBE by EPA Method 8260B

The groundwater samples (approx. 9 total for the investigation) will be:

 TPHg, BTEX, and Five Fuel Oxygenates (MTBE, TBA, DIPE, ETBE, TAME) by EPA Method 8260B

Decontamination and Management of Investigation Derived Soil and Water

Prior to, and between, use all downhole drilling and sampling equipment will either be steam-cleaned or washed in an Alconox® solution followed by double rinse in clean tap water. Soil cuttings and auger/sampler rinseate will be stored in labeled 55-gallon drums on-site pending appropriate disposal. Blue Rock will utilize the analytical results for soil and/or water samples collected from the borings to coordinate soil and water recycling/disposal.

Reporting

Blue Rock will prepare a report following this phase work. The report will include description of field and laboratory methods, results, discussion/interpretation, and recommendations, as conditions warrant. The report text will be supported by tabulated data and drawings. The report will be prepared under the supervision of, and signed by, a California Professional Geologist at Blue Rock.

Project Status and Recommendations

• The site is currently being monitored on a quarterly basis per the HCDEH directives. The next quarterly sampling event is scheduled for September 2005. Blue Rock reviewed site data and proposes the following groundwater monitoring program. The amended groundwater monitoring program is intended to focus project resources on collecting information on known areas of contamination while reducing redundant collection of data from wells that have either contained low to non-detectable concentrations of contaminants.

Well.	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Notes
MW-1	TPHg, BTEX, MTBE, DTW & DO	Plume core			
MW-2	TPHg, BTEX, MTBE, DTW & DO	DTW & DO	DTW & DO	DTW & DO	Clean well (last 4 events)
MW-4	TPHg, BTEX, MTBE DTW & DO	Plume edge			
MW-5	TPHg, BTEX, MTBE, DTW & DO	DTW & DO	DTW & DO	DTW & DO	Clean well (last 4 events)
MW-6	TPHg, BTEX, MTBE, DTW & DO	DTW & DO	DTW & DO	DTW & DO	Clean well (last 4 events)
MW-7	TPHg, BTEX, MTBE, DTW & DO	Plume edge			
MW-8	TPHg, BTEX, MTBE, DTW & DO	Plume edge			
PMW-9A	TPHg, BTEX, MTBE, DTW & DO	Proposed new well*			
PMW-9B	TPHg, BTEX, MTBE, DTW & DO	Proposed new well*			
PMW-10A	TPHg, BTEX, MTBE, DTW & DO	Proposed new well*			
PMW-10B	TPHg, BTEX, MTBE, DTW & DO	Proposed new well*			
PMW-11A	TPHg, BTEX, MTBE, DTW & DO	Proposed new well*			
PMW-11B	TPHg, BTEX, MTBE, DTW & DO	Proposed new well*			
MW-16 (HPI)	TPHg, BTEX, MTBE, DTW & DO	Plume edge			

Notes:

TPHg by EPA Method 8015M or 8260B BTEX by EPA Method 8021B or 8260B

MTBE by EPA Method 8260B

DTW = Depth to water measurement with field meter DO = Dissolved-oxygen measurement with field meter

^{* =} New wells will be monitored at least four consecutive quarters initially

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Certification

This report was prepared under the supervision of a California Professional Geologist at Blue Rock. All statements, conclusions, and recommendations are based upon published results from past consultants, field observations by Blue Rock, and analyses performed by a state-certified laboratory as they relate to the time, location, and depth of points sampled by Blue Rock. Interpretation of data, including spatial distribution and temporal trends, are based on commonly used geologic and scientific principles. It is possible that interpretations, conclusions, and recommendations presented in this report may change, as additional data become available and/or regulations change.

Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party.

The service performed by Blue Rock has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

If you have any questions regarding this project, please contact us at (707) 441-1934.

Sincerely, Blue Rock Environmental, Inc.

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Prepared by:

Scott Ferriman Project Scientist Reviewed by:

Brian Gwinn, PG Principal Geologist

Attachments:

- · Table 1: Soil Analytical Data
- Table 2: Groundwater Elevations and Analytical Data
- Table 3: Intrinsic Bioremediation Data
- Table 4: Well Construction Details
- · Figure 1: Site location Map
- · Figure 2: Site Plan
- Figure 3: Groundwater Elevations Map June 13, 2005
- Figure 4a: Dissolved-Phase TPHg Distribution Map June 13, 2005
- Figure 4b: Dissolved-Phase Benzene Distribution Map June 13, 2005
- Figure 4c: Dissolved-Phase MTBE Distribution Map June 13, 2005
- Figure 5: Proposed Drilling and Nested Well Locations
- Figure 6: Proposed Nested Well Construction Details
- · Blue Rock Gauge/Purge Calculations and Well Purging Data field sheets
- · Laboratory Analytical Report and Chain-of-Custody Form

Distribution:

- Mr. Clyde Harvey, 1785 Fort Douglas Circle, Salt Lake City, UT 84103
- Mr. Dennis O'Keefe, Golden Gate Petroleum, 501 Shell Avenue, Martinez, CA 94553

Table 1 SOIL ANALYTICAL DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Depth (feet bgs)	Sample Date	TPHg (mg/kg)		Toluene (mg/kg)	Ethylbenzen e (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)
							1							
Investigati	on Soil Sam	oles												
B-1	13	5/8/97	<1	< 0.005	<0.005	< 0.005	< 0.01	< 0.05						-
B-2	12	5/8/97	<1	< 0.005	< 0.005	<0.005	< 0.01	< 0.05	-	-	-		-	-
B-4	4	3/14/00	<1	<0.005	<0.005	<0.005	<0.01	<0.05			-		-	-
B-4	8	3/14/00	<1	0.0072	< 0.005	< 0.005	< 0.01	< 0.05						
B-5	4	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	< 0.05						
B-5	8	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	< 0.05						
B-6	4	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	< 0.05						
B-6	8	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	< 0.05						
B-7	4	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	< 0.05						
B-7	8	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	< 0.05						
B-11	4	3/14/00	20	< 0.005	< 0.005	< 0.005	< 0.01	0.045	<0.5	< 0.02	< 0.02	< 0.02	-	
B-11	8	3/14/00	<1	0.0059	< 0.005	< 0.005	< 0.01	< 0.005	< 0.5	< 0.02	< 0.02	< 0.02		
B-12	2.5	1/12/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.01	<0.005	<0.005	<0.005	<0.2	< 0.02
MW-1	5	1/10/01	630	< 0.05	< 0.05	1.6	< 0.05	< 0.05	<0.5	0.13	< 0.05	< 0.05	<1	<2
	10	1/10/01	<1.0	0.03	<0.005	< 0.005	<0.005	<0.005	<0.05	< 0.005	<0.005	< 0.005	<0.5	<0.05
MW-2	5	1/11/01	<1.0	< 0.005	<0.005	<0.005	<0.005	<0.005	< 0.05	< 0.005	<0.005	< 0.005	<0.5	< 0.05
	10	1/11/01	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.2	<0.02
MW-4		1/11/01	-1.0	~0.00E	-0.005	<0.005	~0.00E	~0.00E	-0.05	-0.005	-0.005	-0.005	-0.2	-0.05
M W-4	5		<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.2	<0.05
	10	1/11/01	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.2	<0.02
MW-5	10	3/2/02	<1.0	<0.005	<0.005	< 0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	< 0.005		
	15	3/2/02	<1.0	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-
MW-6	10	3/2/02	<1.0	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	<0.005	<0.005	< 0.005	< 0.005	-	-
	15	3/2/02	<1.0	<0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005	<0.005	-	
MW-7	10	3/2/02	<1.0	< 0.005	< 0.005	<0.005	<0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	_	
	15	3/2/02	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	
MW	10	6/11/02	-10	<0.005	<0.005	0,005	<0.005	0.0005	<0.00£	<0.005	<0.005	<0.005		
MW-8	10	6/11/02	<1.0	<0.005	<0.005	<0.005	<0.005	0.0085	<0.005		<0.005	<0.005	-	-
	20	6/11/02	<1.0	<0.005	<0.005	< 0.005	<0.005	0.035	0.0083	< 0.005	< 0.005	<0.005	-	-

Table 1 SOIL ANALYTICAL DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Depth (feet bgs)	Sample Date	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzen e (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)
Remedial E	Excavation C	onfirmatio	n Samples	(Bottom of	Excavatio	n)								
EB-1@18'	18	8/9/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.18						
EB-2@15'	15	8/12/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005						
EB-3@6'	6	8/12/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			-			
EB-4@6'	6	8/12/04	<1	0.015	< 0.005	< 0.005	< 0.005	0.056						
EB-5@6'	6	8/13/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.03	-					
EB-6@7'	7	8/13/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.24	-					
EB-7@6'	6	8/14/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.089	-					
EB-8@6'	6	8/14/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.12	-					
EB-9@15'	15	8/16/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.30						-
	Excavation C													
SW-1@10	10	8/11/04	<1	< 0.005	<0.005	<0.005	<0.005	< 0.005	-	-	-	-		-
SW-2@10	10	8/11/04	<1	< 0.005	< 0.005	<0.005	< 0.005	< 0.005						-
SW-3@10	10	8/11/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-				-	-
SW-4@10	10	8/11/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005				-	-	
SW-5@5'	5	8/12/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005					-	
SW-6@5'	5	8/13/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-	-			-	
SW-7@5'	5	8/13/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.013				-		
SW-8@5'	5	8/13/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.14					-	
SW-9@5'	5	8/13/04	8.3	< 0.005	< 0.005	0.0061	< 0.005	0.079	-			-	-	
SW-10@7	7	8/16/04	8.8	< 0.005	< 0.005	0.0059	< 0.01	0.012				-		
SW-11@7	7	8/16/04	<1	< 0.005	<0.005	0.0054	< 0.005	0.0076				-	-	
SW-12@7	7	8/16/04	<1	< 0.005	< 0.005	< 0.005	< 0.005	0.0080						

Table 1 SOIL ANALYTICAL DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Depth (feet bgs)	Sample Date	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzen e (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)
Investigati	on Points Re	moved dur	ing Remed	ial Excava	tion									
B-3	11.5	5/8/97	170	< 0.13	< 0.5	0.74	4.1	<1.3						
B-8	4	3/14/00	610	< 0.08	<0.08	< 0.08	0.083	0.081	<4	< 0.2	< 0.2	< 0.2		
B-8	8	3/14/00	<1	0.0065	< 0.005	< 0.005	< 0.01	< 0.005	< 0.5	< 0.02	<0.02	< 0.02	-	
B-9	4	3/14/00	5.2	< 0.005	< 0.005	< 0.005	< 0.01	0.097	<0.5	< 0.02	< 0.02	< 0.02		
B-9	8	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	0.038	< 0.5	< 0.02	< 0.02	< 0.02		
B-10	4	3/14/00	1.6	< 0.005	< 0.005	< 0.01	< 0.02	<0.05						
B-10	8	3/14/00	<1	< 0.005	< 0.005	< 0.005	< 0.01	< 0.05						
MW-3	5	1/10/01	<1.0	< 0.005	< 0.005	< 0.005	< 0.005	0.62	0.072	< 0.005	< 0.005	0.031	< 0.2	< 0.02
MW-3	10	1/10/01	<1.0	< 0.005	< 0.005	< 0.005	< 0.005	0.067	< 0.01	< 0.005	< 0.005	< 0.005	<0.2	< 0.02

Notes

bgs: below ground surface

"--" Not analyzed, available or applicable

mg/kg = milligrams per kilogram=ppm=parts per million

<###: Not detected above the method detection limit as shown</p>

TPHg: Total petroleum hydrocarbons as gasoline by EPA Method 5030/8015M (Methanol: by EPA Method 8260B

BTEX by EPA Method 8020 or 8260B

MTBE: Methyl tertiary butyl ether by EPA 8020 or 8260B

TBA: Tertiary butanol by EPA 8260B

DIPE: Di isopropyl ether by EPA 8260B

ETBE: Ethyl tertiary butyl ether by EPA 8260B

TAME: Tertiary amyl methyl ether by EPA 8260B

Ethanol: by EPA method 8260B

Table 2 GROUNDWATER ELEVATIONS AND ANALYTICAL DATA Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (μg/L)	Xylenes (μg/L)	MTBE (μg/L)	TBA (μg/L)	DIPE (μg/L)	ETBE (μg/L)	TAME (µg/L)	Methanol (μg/L)	Ethanol (μg/L)
GW-3 (B-3)	5/8/99			0.00		23,000	63	110	600	1,630	<130					_	
B-4	3/14/00		~7	0.00		210	4.1	< 0.5	< 0.5	0.79	< 0.5	<10	<1	<1	<1		
B-5	3/14/00		~5	0.00		<50	< 0.5	< 0.5	< 0.5	<1	0.79	<10	<1	<1	<1		
B-6	3/14/00		~4	0.00		110	< 0.5	< 0.5	< 0.5	<1	< 0.5	<10	<1	<1	<1		
B-7	3/14/00		~4	0.00		<50	< 0.5	< 0.5	< 0.5	<1	< 0.5	<10	<1	<1	<1		
B-8	3/14/00		~4	0.00		19,000	18	2.4	20	3.8	1,100	<100	<5	12	91		
B-9	3/14/00		~4	0.00		20,000	36	22	11	<8	3,900	<200	<10	<10	310		
B-10	3/14/00		~2.5	0.00		<63	< 0.5	< 0.5	< 0.5	<1	< 0.5	<13	<1	<1	<1		
B-11	3/14/00		~4.5	0.00		14,000	26	2.6	41	5	580	<100	<5	<5	12		
MW-1	1/19/01	99.75	11.37	0.00	88.38	4,900	5	1.1	14	2.3	200	29	<1	5.4	6.1	<100	<10
	5/4/01	99.75	11.29	0.00	88.46	4,500	12	<2	7.8	<2	620	31	<2	<2	24	<500	<20
Screen	8/16/01	99.75	15.40	0.00	84.35	7,700	13	1.7	23	2.6	280	16	< 0.5	2.4	13	<50	<5
5' - 20'	11/1/01	99.75	15.74	0.00	84.01	3,100	10	0.85	9.8	1.4	220	22	< 0.5	2.5	9.4	<1,500	<5
	3/6/02	58.74	12.32	0.00	46.42	7,700	28	<2.5	14	<2.5	980	39	<2.5	3.9	49		
	6/20/02	58.74	13.59	0.00	45.15	3,400	33	<2.5	13	<2.5	1,100	40	< 2.5	3	48		
	9/3/02	58.74	15.61	0.00	43.13	1,500	6.2	<2.5	<2.5	<2.5	1,200	38	< 2.5	2.9	40		
	12/11/02	58.74	16.31	0.00	42.43	4,200	14	<2	9.8	<2	870	25	<2	2.4	27		
	3/7/03	58.74	12.37	0.00	46.37	8,100	19	<2.5	15	3.9	1,300	39	< 2.5	<2.5	52		
	6/3/03	58.74	11.96	0.00	46.78	6,800	19	<2.5	12	<2.5	1,200	37	<2.5	3	54		
	9/2/03	58.74	15.21	0.00	43.53	5,900	12	<1.5	13	1.7	800	27	<1.5	2.2	31		
	12/3/03	58.74	15.07	0.00	43.67	6,100	6.8	1.5	15	2.5	730	29	<1	2.9	37		
	3/9/04	58.74	11.42	0.00	47.32	5,500	11	<2	12	<2	940	37	<2	2.1	45		
	6/8/04	58.74	13.38	0.00	45.36	7,000	11	<5	14	<10	780	<50	<5	<5	43		
	9/3/04	58.74	15.79	0.00	42.95	810	6.8	<1	3.7	<1	400						
	12/8/04	58.74	12.79	0.00	45.95	3,700	4.7	1.5	20	1.9	270						
	3/25/05	58.74	10.79	0.00	47.95	7,400	4.8	1.4	21	1.4	240						
	6/13/05	58.74	12.14	0.00	46.60	3,700	7.8	1.9	15	1.7	190						

Table 2 GROUNDWATER ELEVATIONS AND ANALYTICAL DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (μg/L)	Ethylbenzene (µg/L)	Xylenes (μg/L)	MTBE (μg/L)	TBA (μg/L)	DIPE (µg/L)	ETBE (μg/L)	TAME (μg/L)	Methanol (μg/L)	Ethanol (μg/L)
MW-2	1/19/01	99.24	12.41	0.00	86.83	<50	<0.5	<0.5	<0.5	< 0.5	2.4	<5	<0.5	<0.5	<0.5	<50	<5
	5/4/01	99.24	11.07	0.00	88.17	<50	< 0.5	< 0.5	< 0.5	< 0.5	11	<5	< 0.5	< 0.5	< 0.5	<50	<5
Screen	8/16/01	99.24	14.24	0.00	85.00	<50	< 0.5	< 0.5	< 0.5	< 0.5	14	<5	< 0.5	< 0.5	< 0.5	<50	<5
5' - 15'	11/1/01	99.24	Dry				-	-	-		_	_		_	-		
	3/6/02	58.18	10.74	0.00	47.44	<50	< 0.5	< 0.5	< 0.5	< 0.5	1.2	<5	< 0.5	< 0.5	< 0.5		
	6/20/02	58.18	12.70	0.00	45.48	<50	< 0.5	< 0.5	< 0.5	< 0.5	2.3	<5	< 0.5	< 0.5	< 0.5		
	9/3/02	58.18	Dry			-											-
	12/11/02	58.18	Dry														
	3/7/03	58.18	10.04	0.00	48.14	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	6/3/03	58.18	10.06	0.00	48.12	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	9/2/03	58.18	14.01	0.00	44.17	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	12/3/03	58.18	13.13	0.00	45.05	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	3/9/04	58.18	9.07	0.00	49.11	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	6/8/04	58.18	12.14	0.00	46.04	<50	< 0.5	< 0.5	< 0.5	<1	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	9/3/04	58.18	14.55	0.00	43.63	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	12/8/04	58.18	8.51	0.00	49.67	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	3/25/05	58.18	8.63	0.00	49.55	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	6/13/05	58.18	10.26	0.00	47.92	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						

Table 2
GROUNDWATER ELEVATIONS AND ANALYTICAL DATA
Former Cash Oil Fortuna
409 South Fortuna Boulevard
Fortuna, California
Blue Rock Project No. NC-004

Sample ID	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (μg/L)	Toluene (µg/L)	Ethylbenzene (μg/L)	Xylenes (μg/L)	MTBE (μg/L)	TBA (μg/L)	DIPE (μg/L)	ETBE (μg/L)	TAME (μg/L)	Methanol (μg/L)	Ethanol (μg/L)
MW-3	1/19/01	99.77	9.88	0.00	89.89	<2,000	<20	<20	<20	<20	15,000	560	<20	<20	490	<2,000	<200
	5/4/01	99.77	4.96	0.00	94.81	4,800	630	<20	72	130	7,700	570	<20	<20	200	<2,000	<200
Screen	8/16/01	99.77	15.64	0.00	84.13	1,300	14	0.98	1.6	1.1	6,800	320	< 0.5	6	240	<150	<5
5' - 20'	11/1/01	99.77	15.98	0.00	83.79	<2,000	<20	<20	<20	<20	6,600	460	<20	<20	270	<35,000	<200
	3/6/02	58.72	13.06	0.00	45.66	<2,000	<20	21	<20	<20	6,600	240	<20	<20	160		
	6/20/02	58.72	11.70	0.00	47.02	1,900	57	<5	<5	<5	2,900	90	<5	<5	140		
	9/3/02	58.72	15.53	0.00	43.19	<1,000	<10	<10	<10	<10	3,300	130	<10	<10	110		
	12/11/02	58.72	16.48	0.00	42.24	<1,000	<10	<10	<10	<10	3,600	110	<10	<10	110		
	3/7/03	58.72	4.18	0.00	54.54	3,300	150	5.4	7.1	18	2,300	77	<5	<5	110		
	6/3/03	58.72	4.40	0.00	54.32	3,000	100	4.4	4.2	12	1,900	56	<2.5	<2.5	96		
	9/2/03	58.72	14.69	0.00	44.03	<500	<5	<5	<5	<5	2,300	68	<5	<5	80		
	12/3/03	58.72	14.79	0.00	43.93	1,600	89	<5	<5	8.1	2,300	78	<5	<5	120		
	3/9/04	58.72	7.90	0.00	50.82	1,500	23	<3	<3	4.9	1,400	62	<3	<3	68		
	6/8/04	58.72	11.28	0.00	47.44	<5,000	<50	<50	<50	<100	1,800	<500	<50	<50	89	-	
	8/13/04		Remove	ed durin	g remedi	al soil exca	vation acti	vities									

Table 2 GROUNDWATER ELEVATIONS AND ANALYTICAL DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (μg/L)	Ethylbenzene (µg/L)	Xylenes (μg/L)	MTBE (μg/L)	TBA (μg/L)	DIPE (μg/L)	ETBE (µg/L)	TAME (μg/L)	Methanol (μg/L)	Ethanol (μg/L)
MW-4	1/19/01	99.12	12.17	0.00	86.95	150	<1	<1	<1	<1	680	210	<1	<1	11	<100	<10
	5/4/01	99.12	10.71	0.00	88.41	<200	<2	<2	<2	<2	440	120	<2	<2	16	<200	<20
Screen	8/16/01	99.12	14.83	0.00	84.29	<50	< 0.5	< 0.5	< 0.5	< 0.5	250	<5	< 0.5	< 0.5	10	<50	<5
5' - 20'	11/1/01	99.12	14.76	0.00	84.36	61	< 0.5	< 0.5	< 0.5	< 0.5	210	18	< 0.5	< 0.5	8.5	<50	<5
	3/6/02	58.07	10.28	0.00	47.79	220	< 0.5	< 0.5	< 0.5	< 0.5	130	40	< 0.5	< 0.5	5.4		
	6/20/02	58.07	12.41	0.00	45.66	<50	< 0.5	< 0.5	< 0.5	< 0.5	440	32	< 0.5	< 0.5	20		
	9/3/02	58.07	14.34	0.00	43.73	<250	<2.5	<2.5	<2.5	<2.5	1,300	35	<2.5	<2.5	34		
	12/11/02	58.07	15.23	0.00	42.84	< 500	<5	<5	<5	<5	2,300	<50	<5	<5	54		
	3/7/03	58.07	10.48	0.00	47.59	330	<1	<1	<1	<1	570	33	<1	<1	28		
	6/3/03	58.07	10.12	0.00	47.95	130	< 0.5	< 0.5	< 0.5	< 0.5	380	19	< 0.5	< 0.5	23		
	9/2/03	58.07	13.82	0.00	44.25	85	< 0.5	< 0.5	< 0.5	< 0.5	390	12	< 0.5	< 0.5	17		
	12/3/03	58.07	13.91	0.00	44.16	220	< 0.5	< 0.5	< 0.5	< 0.5	510	31	< 0.5	< 0.5	22		
	3/9/04	58.07	9.51	0.00	48.56	<500	<5	<5	<5	<5	2,000	220	<5	<5	5.6		
	6/8/04	58.07	12.03	0.00	46.04	210	< 0.5	< 0.5	< 0.5	<1	420	25	< 0.5	< 0.5	1.5		
	9/3/04	58.07	14.41	0.00	43.66	<100	<1	<1	<1	<1	430						
	12/8/04	58.07	10.72	0.00	47.35	<50	< 0.5	< 0.5	< 0.5	< 0.5	140						
	3/25/05	58.07	8.97	0.00	49.10	<50	< 0.5	< 0.5	< 0.5	< 0.5	40						
	6/13/05	58.07	10.27	0.00	47.80	<50	< 0.5	< 0.5	< 0.5	< 0.5	22	_					

Table 2 GROUNDWATER ELEVATIONS AND ANALYTICAL DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethylbenzene (µg/L)	Xylenes (μg/L)	MTBE (μg/L)	TBA (μg/L)	DIPE (μg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (μg/L)	Ethanol (μg/L)
MW-5	3/6/02	58.37	4.39	0.00	53.98	<50	< 0.5	< 0.5	<0.5	<0.5	0.53	<5	<0.5	<0.5	< 0.5	-	
	6/20/02	58.49	12.50	0.00	45.99	<50	< 0.5	< 0.5	< 0.5	0.56	< 0.5	<5	< 0.5	< 0.5	< 0.5	-	
Screen	9/3/02	58.49	14.49	0.00	44.00	<50	< 0.5	< 0.5	< 0.5	< 0.5	1.3	<5	< 0.5	< 0.5	< 0.5		
5' - 20'	12/11/02	58.49	15.39	0.00	43.10	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5	-	
	3/7/03	58.49	8.76	0.00	49.73	<50	< 0.5	< 0.5	< 0.5	< 0.5	0.95	<5	< 0.5	< 0.5	< 0.5		
	6/3/03	58.49	8.12	0.00	50.37	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	9/2/03	58.49	14.02	0.00	44.47	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	12/3/03	58.49	14.04	0.00	44.45	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	3/9/04	58.49	6.35	0.00	52.14	<50	< 0.5	< 0.5	< 0.5	< 0.5	1.1	<5	< 0.5	< 0.5	< 0.5		
	6/8/04	58.49	11.95	0.00	46.54	< 50	< 0.5	< 0.5	< 0.5	<1	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	9/3/04	58.49	14.50	0.00	43.99	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	12/8/04	58.49	5.71	0.00	52.78	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	3/25/05	58.49	3.71	0.00	54.78	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	6/13/05	58.49	10.38	0.00	48.11	<50	<0.5	< 0.5	< 0.5	< 0.5	<0.5		-	-		-	
MW-6	3/6/02	58.02	10.28	0.00	47.74	<50	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	<0.5	<0.5	< 0.5		
	6/20/02	58.02	12.62	0.00	45.40	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
Screen	9/3/03	58.02	14.33	0.00	43.69	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
5' - 20'	12/11/02	58.02	15.28	0.00	42.74	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	3/7/03	58.02	10.67	0.00	47.35	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	6/3/03	58.02	10.37	0.00	47.65	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	9/2/03	58.02	13.87	0.00	44.15	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	12/3/03	58.02	14.38	0.00	43.64	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	3/9/04	58.02	9.62	0.00	48.40	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<5	< 0.5	< 0.5	< 0.5	**	
	6/8/04	58.02	12.20	0.00	45.82	<50	< 0.5	< 0.5	< 0.5	<1	< 0.5	<5	< 0.5	< 0.5	< 0.5		
	9/3/04	58.02	14.48	0.00	43.54	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	12/8/04	58.02	12.95	0.00	45.07	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	3/25/05	58.02	10.45	0.00	47.57	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						
	6/13/05	58.02	10.70	0.00	47.32	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5						

Table 2 GROUNDWATER ELEVATIONS AND ANALYTICAL DATA Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethylbenzene (µg/L)	Xylenes (μg/L)	MTBE (μg/L)	TBA (μg/L)	DIPE (μg/L)	ETBE (μg/L)	TAME (µg/L)	Methanol (μg/L)	Ethanol (μg/L)
MW-7	3/6/02	58.42	3.68	0.00	54.74	110	<0.5	<0.5	<0.5	<0.5	78	<5	<0.5	<0.5	1.4		_
	6/20/02	58.42	4.27	0.00	54.15	200	< 0.5	< 0.5	< 0.5	< 0.5	26	<5	< 0.5	< 0.5	0.7		
Screen	9/3/02	58.42	5.77	0.00	52.65	250	< 0.5	< 0.5	< 0.5	2.5	30	15	< 0.5	< 0.5	0.51		
5' - 20'	12/11/02	58.42	6.21	0.00	52.21	360	< 0.5	< 0.5	< 0.5	4.5	37	9.2	< 0.5	< 0.5	0.74		
	3/7/03	58.42	3.80	0.00	54.62	780	< 0.5	< 0.5	1.1	3.8	21	<5	< 0.5	< 0.5	< 0.5		
	6/3/03	58.42	3.47	0.00	54.95	650	< 0.5	< 0.5	0.85	2.6	17	5.3	< 0.5	< 0.5	< 0.5		
	9/2/03	58.42	4.70	0.00	53.72	470	< 0.5	< 0.5	0.59	1.6	13	7.5	< 0.5	< 0.5	< 0.5		
	12/3/03	58.42	4.78	0.00	53.64	490	< 0.5	< 0.5	0.64	1.5	17	<5	< 0.5	< 0.5	< 0.5		
	3/9/04	58.42	3.45	0.00	54.97	530	< 0.5	< 0.5	0.9	1.7	16	8.9	< 0.5	< 0.5	< 0.5		
	6/8/04	58.42	3.75	0.00	54.67	540	< 0.5	< 0.5	0.7	0.8	11	<5	< 0.5	< 0.5	< 0.5		
	9/3/04	58.42	5.33	0.00	53.09	290	< 0.5	< 0.5	< 0.5	0.9	8.1						
	12/8/04	58.42	2.75	0.00	55.67	670	0.57	< 0.5	1.2	0.85	13						
	3/25/05	58.42	3.24	0.00	55.18	1,100	0.56	0.58	2.8	0.92	8.4						
	6/13/05	58.42	3.87	0.00	54.55	770	< 0.5	<0.5	1.1	0.80	6.0	-	-			-	-
MW-8	6/20/02	58.81	4.75	0.00	54.06	<50	< 0.5	< 0.5	< 0.5	< 0.5	14	<5	<0.5	< 0.5	0.52		
	9/3/02	58.81	14.76	0.00	44.05	<50	< 0.5	< 0.5	< 0.5	0.63	11	<5	< 0.5	< 0.5	< 0.5		
Screen	12/11/02	58.81	16.55	0.00	42.26	92	< 0.5	< 0.5	< 0.5	2.1	21	<5	< 0.5	< 0.5	1.1		
5' - 20'	3/7/03	58.81	11.89	0.00	46.92	67	< 0.5	< 0.5	< 0.5	< 0.5	17	<5	< 0.5	< 0.5	0.99		
	6/3/03	58.81	11.67	0.00	47.14	<50	< 0.5	< 0.5	< 0.5	< 0.5	25	<5	< 0.5	< 0.5	1.5		
	9/2/03	58.81	15.53	0.00	43.28	51	< 0.5	< 0.5	< 0.5	< 0.5	56	<5	< 0.5	< 0.5	3.6		
	12/3/03	58.81	15.31	0.00	43.50	57	< 0.5	< 0.5	< 0.5	< 0.5	10	<5	< 0.5	< 0.5	< 0.5		
	3/9/04	58.81	9.82	0.00	48.99	<50	< 0.5	< 0.5	< 0.5	< 0.5	4.3	<5	< 0.5	< 0.5	< 0.5		
	6/8/04	58.81	13.28	0.00	45.53	<50	< 0.5	< 0.5	< 0.5	< 0.5	37	<5	< 0.5	< 0.5	0.9		
	9/3/04	58.81	15.68	0.00	43.13	<50	< 0.5	< 0.5	< 0.5	< 0.5	21						
	12/8/04	58.81	13.47	0.00	45.34	<50	< 0.5	< 0.5	< 0.5	< 0.5	41		**				
	3/25/05	58.81	11.26	0.00	47.55	<50	< 0.5	< 0.5	< 0.5	< 0.5	16		-				
	6/13/05	58.81	11.85	0.00	46.96	<50	< 0.5	< 0.5	< 0.5	< 0.5	5.6						

Table 2 GROUNDWATER ELEVATIONS AND ANALYTICAL DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Sample ID	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (μg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (μg/L)	MTBE (μg/L)	TBA (μg/L)	DIPE (μg/L)	ETBE (µg/L)	TAME (μg/L)	Methanol (μg/L)	Ethanol (µg/L)
	100000			200	1000												
MW-16	6/20/02	57.54	12.79	0.00	44.75					**					**		
(Humboldt	9/3/02	57.54	14.49	0.00	43.05												
Pet. Well)	12/11/02	57.54	15.41	0.00	42.13							**					
	3/7/03	57.54	10.90	0.00	46.64							**					
	6/3/03	57.54	10.76	0.00	46.78												
	9/2/03	57.54	14.24	0.00	43.30			**									
	12/3/03	57.54	14.71	0.00	42.83		**										
	3/9/04	57.54	10.32	0.00	47.22												
	6/8/04	57.54	12.33	0.00	45.21												
	9/3/04	57.54	14.76	0.00	42.78												
	12/8/04	57.54	13.27	0.00	44.27		-										
	3/25/05	57.54	10.91	0.00	46.63												
	6/13/05	57.54	11.03	0.00	46.51												
					MCL		1.0	150	300	1,750	13						
			Taste and	d odor th	reshold	5		42	29	17	5						
		NC	RWQCE	Cleanu	p Goals	50	0.5	42	29	17	5						
Mater.																	

Notes:

TOC: Top of well casing referenced to arbitrary site benchmark until 3/02, MSL thereafter

DTW: Depth to water as referenced to top of casing SPH: Separate phase hydrocarbon on top of groundwater GWE: Groundwater elevation as referenced to benchmark

 μ g/L = micrograms per liter = ppb = parts per billion

TPHg: Total petroleum hydrocarbons as gasoline by Method 5030/8015M or 5030/8260B

MTBE: Methyl tertiary butyl ether by Method 8020 or 8260B

MW-16 (LOP #12093) was used for the purpose of obtaining additional groundwater gradient and direction data.

TBA: Tertiary butyl alcohol by Method 8260B DIPE: Di isopropyl ether by Method 8260B ETBE: Ethyl tertiary butyl ether by Method 8260B

TAME: Tertiary amyl methyl ether by method 8260B

Methanol: by EPA Method 8260B Ethanol: by EPA Method 8260B MCL: Maximum contaminant level

NCRWQCB: North Coast Region Water Quality Control Board

Table 3 INTRINSIC BIOREMEDIATION DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project # NC-004

Well The part Well Color Col								Total					Ortho	Ferrous	Dissolved				Heterotrophic	
MW-1 62002 3,400 1,100 0,41 6,4 310 0,56 7,6 1,6 0,5 7,4 52 5,4 97 7,000 1,000 12/11/02 4,200 870 2,91 80 5.8 370 0,87 7,9 0,87 <1 <0.5 8.1 6,800 39 12 120 20,000 50 93/04 4 3700 270 1,80	Well		-	MTBE		Eh*		Alkalinity	Nitrate				Phosphate		Manganese		BOD	COD	Plate Count	Degraders
1211102 4200 870 2.91 80 5.8 370 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9	ID	Date	(µg/L)	(µg/L)	(mg/L)	(mV)	pH*	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(CFU/mL)	(CFU/mL)
12/11/02 4,200 870 2.91 80 5.8 370 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9 0.87 7.9	MW-1	6/20/02	3 400	1 100	0.41		64	310	0.56	76	1.6		< 0.5	7.4	_	52	5.4	97	7.000	1.000
93/04 810 400 1.87	141.44-1																			
128/04 3,700 270 180																-				
32505 7,400 240 0.65																				
MW-2 6/20/02 <50 2.3 0.47 0.47 6.5										_	-	-	_		_		_			
MW-2 6/20/02 < 50										-		-	-		_	-	-			
12/11/02		0/15/05	3,700	190	3.10	-	-	_			-	-		-						
9/3/04	MW-2		<50	2.3	0.47	0.47	6.5								-		-		-	
12/8/04 <50		12/11/02						-								**				
3/25/05			<50	< 0.5	2.08									-						
MW-3 6/20/02 1,900 2,900 0.42 6.5 340 0.54 10 1.2 <0.5 8.2 44 4.2 110 20,000 3,000 12/11/02 <1,000 3,600 3.12 50 4.4 350 0.94 10 1.4 <1 <0.5 6.9 17,000 32 12 110 20,000 300 MW-4 6/20/02 <50 440 0.62 6.4		12/8/04	<50	< 0.5	2.23	**	**													
MW-3		3/25/05	<50	< 0.5	5.78															
12/11/02 <1,000 3,600 3.12 50 4.4 350 0.94 10 1.4 <1 <0.5 6.9 17,000 32 12 110 20,000 300 MW-4 6/20/02 <50 440 0.62 6.4		6/13/05	<50	<0.5	4.25			-					-	-						
12/11/02 <1,000 3,600 3.12 50 4.4 350 0.94 10 1.4 <1 <0.5 6.9 17,000 32 12 110 20,000 300 MW-4 6/20/02 <50 440 0.62 6.4	MW-3	6/20/02	1.900	2 900	0.42		6.5	340	0.54	10	1.2		< 0.5	8.2		44	4.2	110	20.000	3.000
MW-4 6/20/02 <50	11111																			
12/11/02																				
9/3/04 <100	MW-4																-			
12/8/04 <50 140 1.95				2,300	2.87	165	6.0	-			**			**						
3/25/05 <50				430		-		-		-			-	-	-					-
MW-5 6/20/02 <50 <0.5 0.57 6.4				140											-					
MW-5 6/20/02 <50 <0.5 0.57 6.4			<50	40	0.40	**				**			**						-	
12/11/02 <50 <0.5		6/13/05	<50	22	0.60		-	-			-	-							-	-
12/11/02 <50 <0.5	MW-5	6/20/02	<50	<0.5	0.57		6.4													
9/3/04 <50 <0.5	111111111111111111111111111111111111111																			
12/8/04								-		-					_					
3/25/05																				
6/13/05 <50 <0.5							-	_					-							
12/11/02 <50 <0.5 3.25 146 5.9 85 12 0.16 4.4 <1 <0.5 <0.1 18 3.2 <3 <10 80,000 200 9/3/04 <50 <0.5 2.11								_					-		_					
12/11/02 <50 <0.5 3.25 146 5.9 85 12 0.16 4.4 <1 <0.5 <0.1 18 3.2 <3 <10 80,000 200 9/3/04 <50 <0.5 2.11																				
9/3/04 <50 <0.5 2.11	MW-6																			
12/8/04 <50 <0.5 2.04						146	5.9	85	12	0.16	4.4	<1	<0.5	<0.1	18	3.2	<3	<10	80,000	200
3/25/05 <50 <0.5 4.27							**			**			**							
								-			-			-						-
6/13/05 <50 <0.5 4.61											-									
		6/13/05	<50	< 0.5	4.61	**	**						***							

Table 3 INTRINSIC BIOREMEDIATION DATA

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project # NC-004

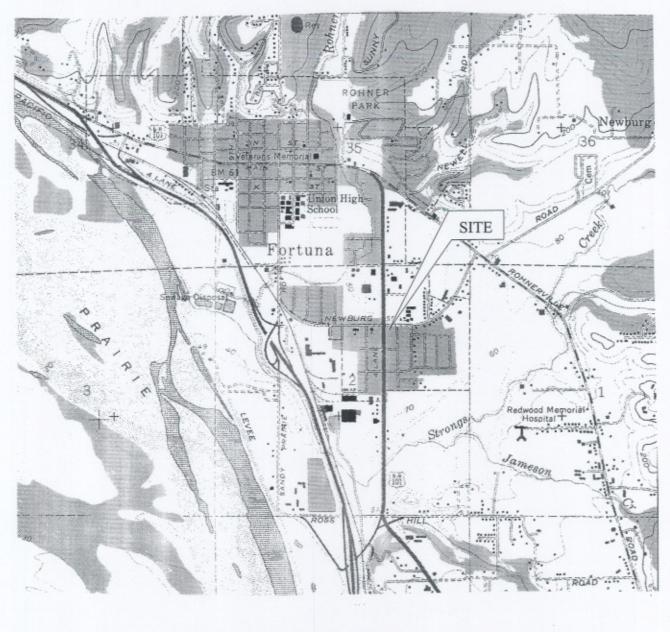
							Total					Ortho	Ferrous	Dissolved				Heterotrophic	Aerobic
***		THE REAL PROPERTY.	A APPENDE	DO+	F1.+			NT		0.16.4	0.161				moo	DOD	con		
Well	Dete	TPHg	MTBE	DO*	Eh*	рН*	Alkalinity	Nitrate	Ammonia (mg/L)					Manganese	TOC	BOD	COD (mg/L)	Plate Count (CFU/mL)	Degraders (CFU/mL)
ID	Date	(µg/L)	(µg/L)	(mg/L)	(mv)	pri	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(Cro/mb)	(Cro/mL)
MW-7	6/20/02	200	26	0.61		6.6			-			_						-	
	12/11/02	360	37	2.78	21	5.9			**				-		***				
	9/3/04	290	8.1	2.12								-							
	12/8/04	670	13	1.57														-	
	3/25/05	1,100	8.4	0.47															
	6/13/05	770	6.0	0.51			-					-	-					-	
MW-8	6/20/02	<50	14	0.58		6.5	-											-	
	12/11/02	92	21	2.37	79	5.9													
	9/3/04	<50	21	1.99															
	12/8/04	<50	41	2.20															**
	3/25/05	<50	16	2.13		**													
	6/13/05	<50	5.6	0.72															
Notes:																			
TPHg	Total petro	leum hyd	rocarbons	as gasoli	ine by E	PA Me	thod 5030/82	260B				Sulfate by EPA Method 375.4							
MTBE	Methyl ter	tiary buty	ether by	EPA Met	hod 826	50B						Sulfide by EPA Method 376.2							
µg/L	microgram	s per liter	, equivale	nt to part	s per bil	lion - p	pb					Phosphate by EPA Method 365.2							
mg/L	milligrams											TOC	Total organ	nic carbon by	EPA Me	thod 906	0		
*	Parameters	measure	d in field	and recor	ded on f	ield she	eets					Ferrous Iron	by Standar	d Method 350	00				
mV	Millivolts											BOD	Biological	oxygen dema	nd by Sta	andard M	ethod 52	10B	
CFU/mL	Colony for	ming unit	s per mill	iliter								COD	Chemical of	xygen demar	d by EP.	A Method	d 410.4		
DO	Dissolved	oxygen m	easured w	vith down	hole me	ter						Heterotroph	nic						
Eh	Reduction	-oxidation	potential	measure	d with d	ownhol	e meter					Plate Count	Bacteria er	numeration as	say by St	andard N	1ethod 92	15B modified	
pH	pH measur	red with fi	eld meter									Hydrocarbo	ın						
Alkalinity	by EPA M	ethod 310	.1									Degraders	Bacteria er	numeration as	say for d	iesel and	gasoline	degraders	
Nitrate	by EPA M	ethod 300	0.0									"-";		ed, available,					
Ammonia	by EPA M	ethod 350	.2									<###	Not detecte	ed above the r	number in	ndicated			
Manganese	by EPA M	ethod 200	1.7																

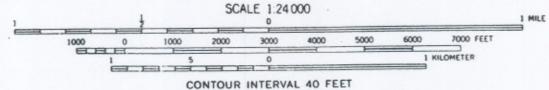
Table 4
WELL CONSTRUCTION DETAILS

Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California Blue Rock Project No. NC-004

Monitoring Well Identification	Date Intstalled	Intstalled by	Casing Diameter (inches)	Total Depth (feet)	Blank Interval (feet)	Screened Interval (feet)	Slot Size (inches)	Filter Pack (feet)	Bentonite Seal (feet)	Cement Grout (feet)
MW-1	1/10/01	Clearwater	2	20	0-5	5-20	0.02	4.5-20	3-4.5	0-3
MW-2	1/11/01	Clearwater	2	15	0-5	5-15	0.02	4.5-15	3-4.5	0-3
MW-3*	1/10/01	Clearwater	2	20	0-5	5-20	0.02	4.5-20	3-4.5	0-3
MW-4	1/11/01	Clearwater	2	20	0-5	5-20	0.02	4.5-20	3-4.5	0-3
MW-5	3/2/02	Clearwater	2	20.5	0-5	5-20	0.02	4-20	3-4	0-3
MW-6	3/2/02	Clearwater	2	20.5	0-5	5-20	0.02	4-20	3-4	0-3
MW-7	3/2/02	Clearwater	2	20.5	0-5	5-20	0.02	4-20	3-4	0-3
MW-8	6/11/02	Clearwater	2	20	0-5	5-20	0.02	4-20	3-4	0-3

MW-3 was removed during remedial excavation activities in 8/04.





MAP SOURCE: USGS Fortuna Quadrangle

1

Site Location Map

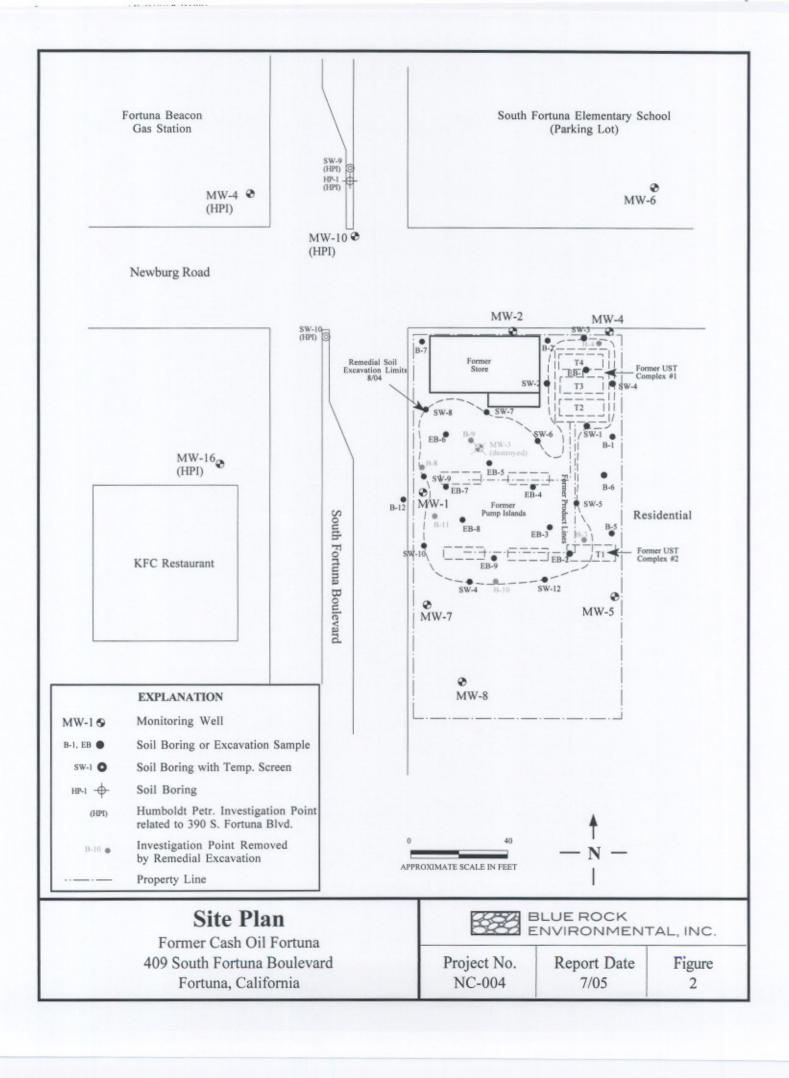
Former Cash Oil Fortuna 409 South Fortuna Boulevard Fortuna, California

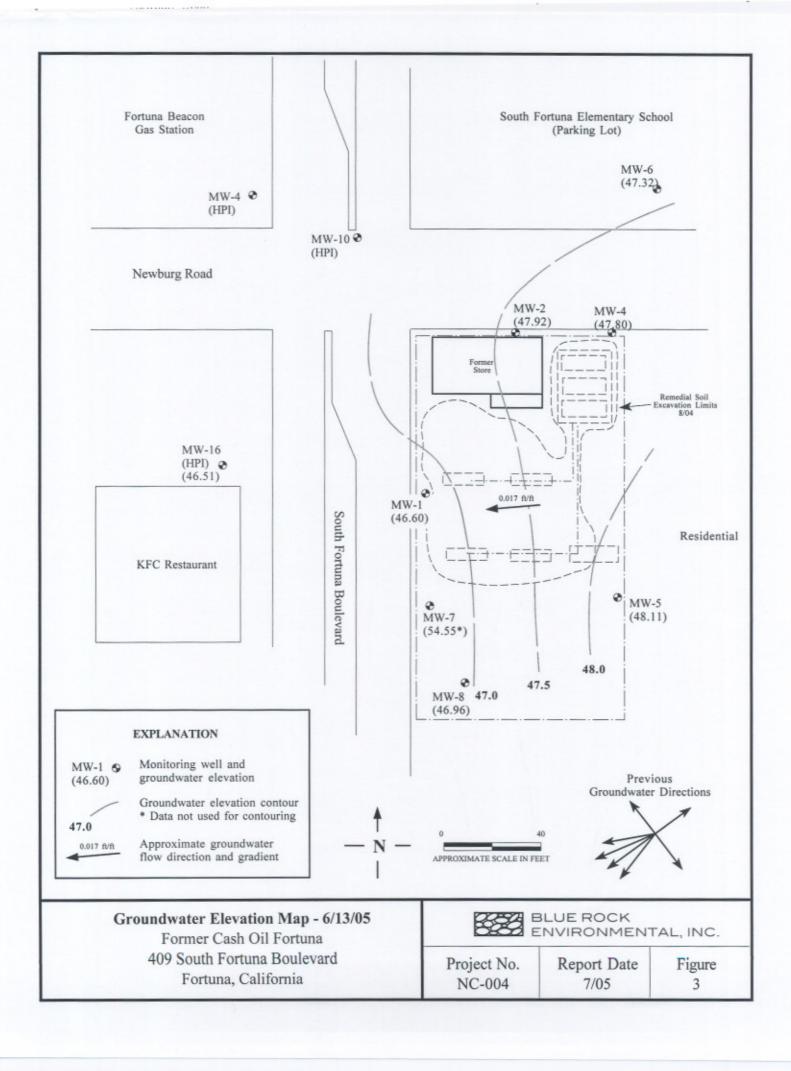


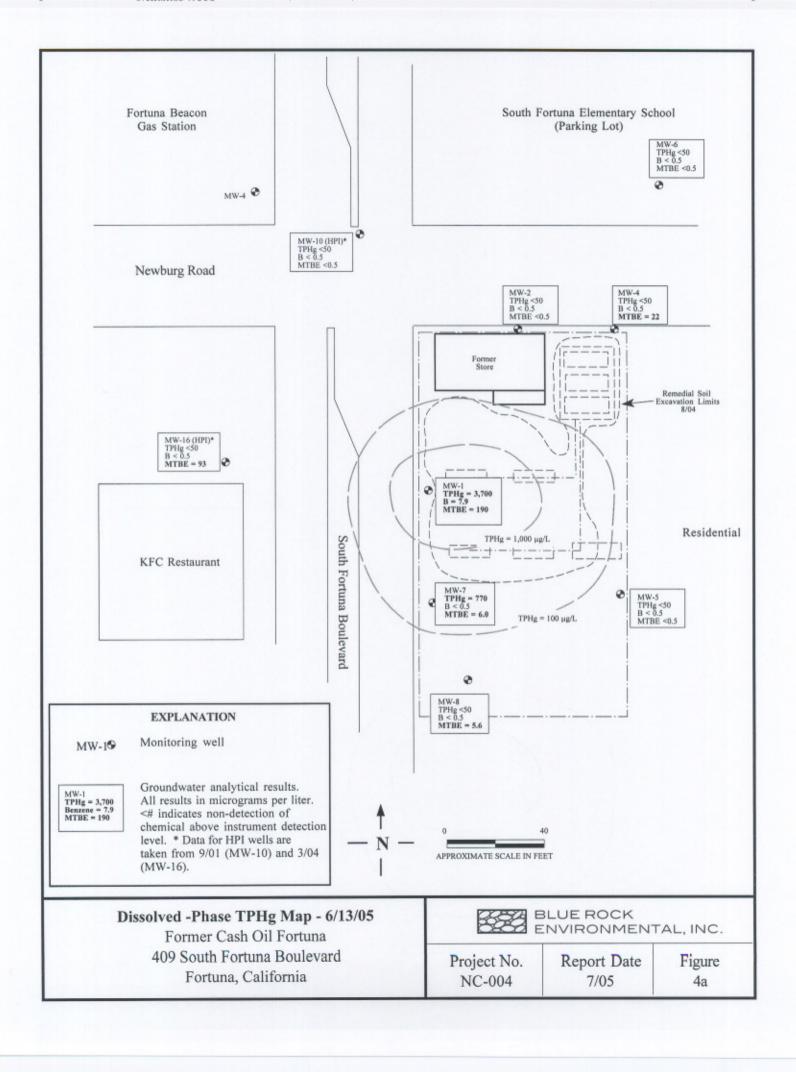
BLUE ROCK ENVIRONMENTAL, INC.

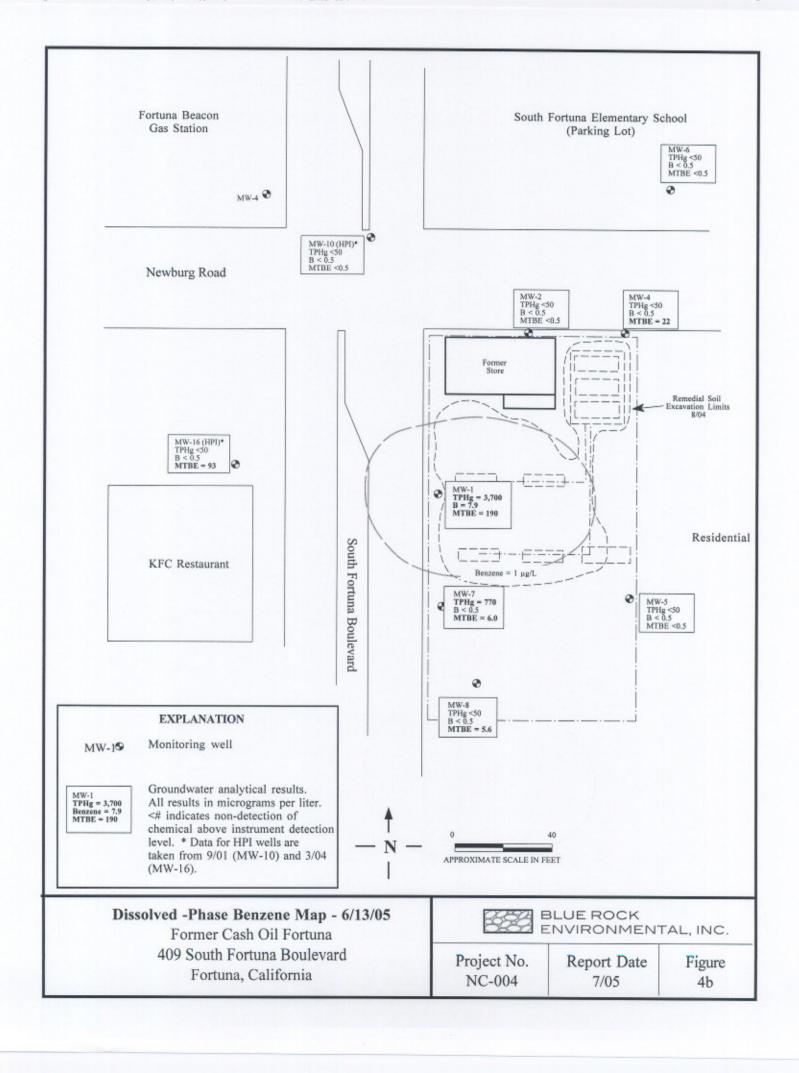
Project	t No.
NC-0	004

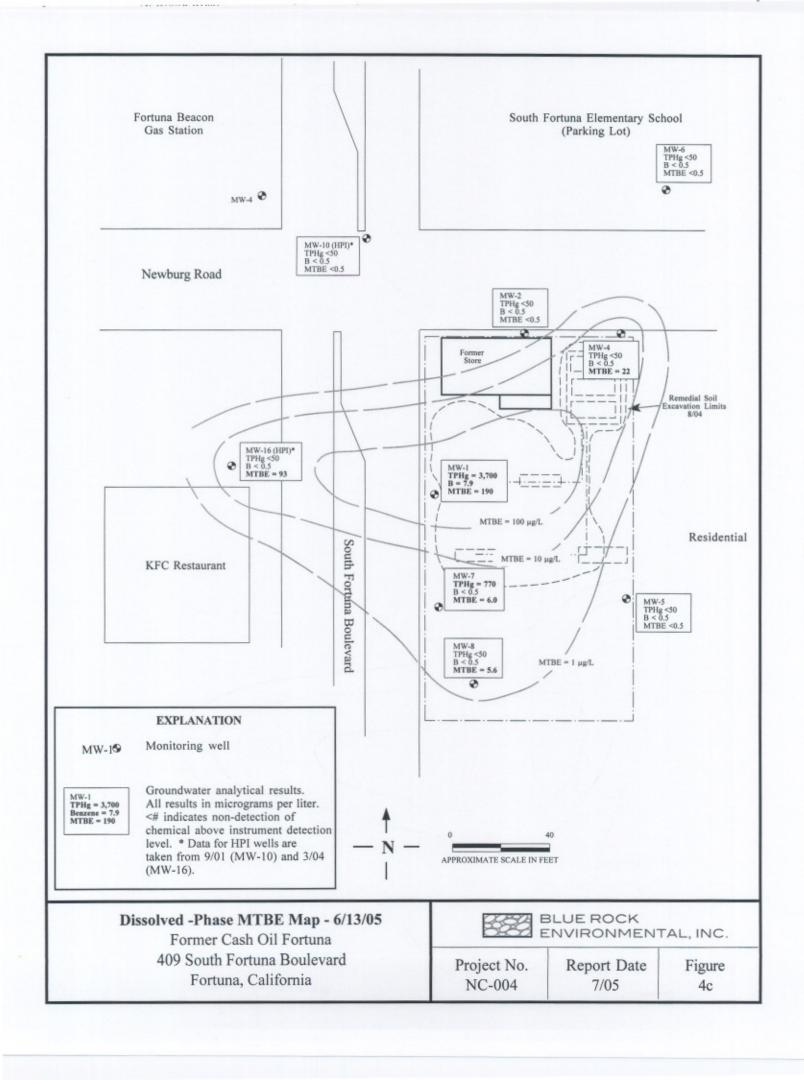
Figure 1

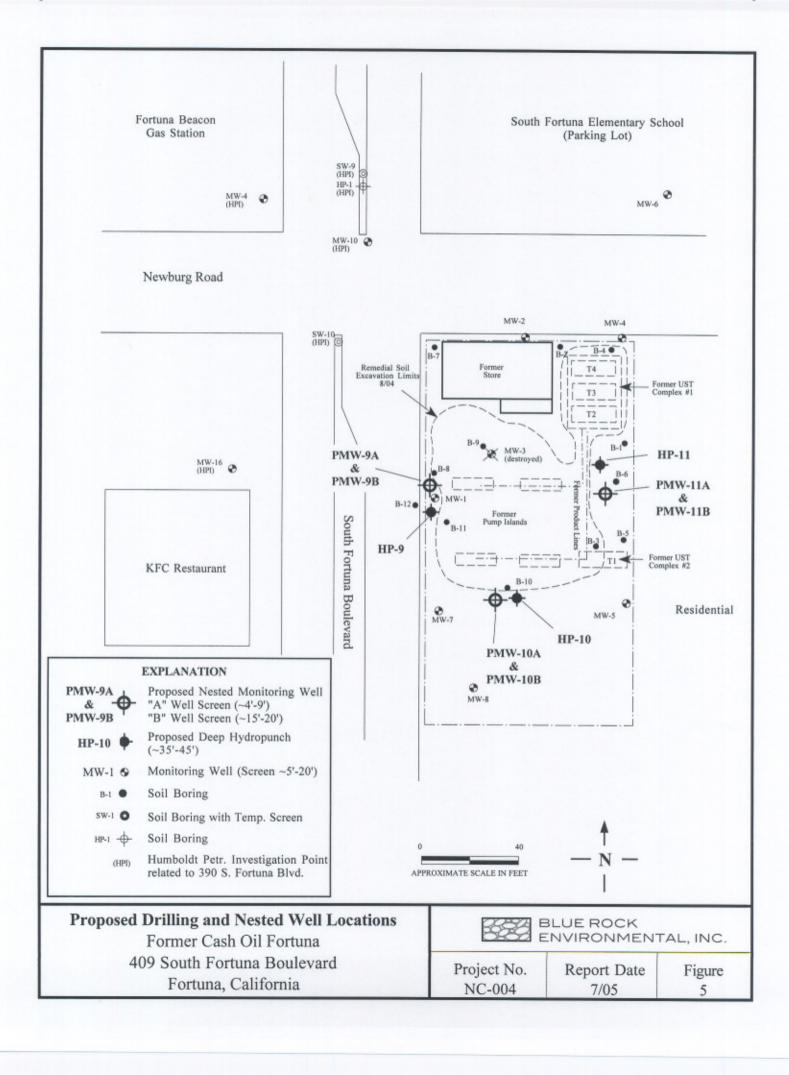


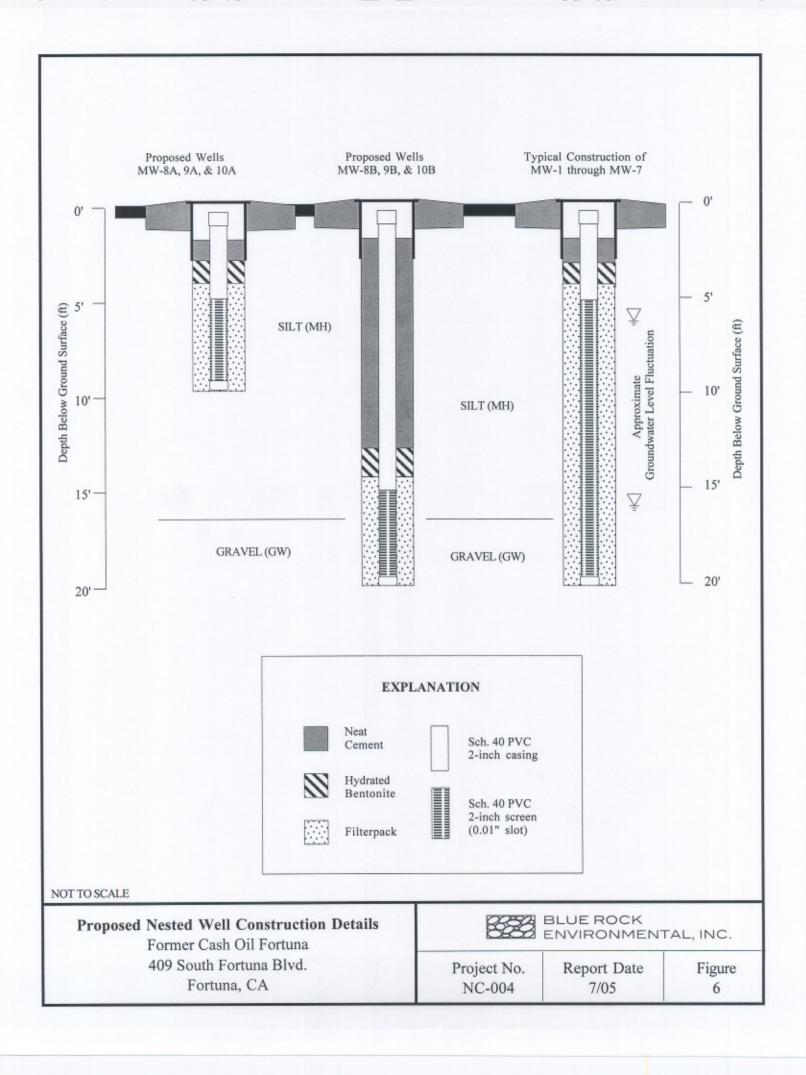












GAGING DATA/PURGE CALCULATIONS

Job No.: /	VC-4	Location:	409 5.1	Fortuna	Blud.	Date: 6/	13/05	Tech(s): JL
WELL NO.	DIA. (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPH (ft.)	NOTES
MW-1	2"	19.72	12.14	7.58		3.63	0	00=3.16
MW-2	1	14.79	10.26	4.53	0.72	2.17	1	00=4.25
MW-4		19.75	10.27	9,48	1.51	4.55		po=0,60
MW-5		19.30	10.38	8.92	1.42	4,28		Do=4.50
MW-6		18.80	10.70	8.10	1.29	3.88		DO = 4,61
MW-7		19.90	3.87	16.03	2.56	7.69		Do=0.51
MW-8	4	18.25	11.85	6.40	1.02	3.07	V	00:0,72
MW-16	2"		11.03					
			4					
	,							

Explanation:

DIA. = Well Diameter

DTB = Depth to Bottom

DTW = Depth to Water

ST = Saturated Thickness (DTB-DTW)

CV = Casing Volume (ST x cf)

PV = Purge Volume (standard 3 x CV, well development 10 x CV)

SPH = Thickness of Separate Phase Hydrocarbons

Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.

4 in. dia. well cf = 0.65 gal./ft.

6 in. dia. well cf = 1.44 gal./ft.



Job No.: No	C-4	Location: L	109 S. F	ortuna B	lvdDate: 6	,/13/05 Tech: JL			
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН				
MW-1						Sample for:			
Calc. purge	12:00	1.0	932	59.8	5.99	TPHg TPHd 8260			
volume	12105	2.5	932	60,5	6.05	BTEX MTBE Metals			
3,63	12110	3.6	939	60.1	6.03	Purging Method:			
						PVC bailey / Pump			
COMMENTS: color, turbidity, recharge, sheen Sampling Method:									
	chear	low/1	nod,	sheen/	HEOV	Dedicated / Disposable bailer			
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН	Sample at: 17115			
MW-2						Sample for:			
Calc. purge	11:00	0.50	135	620	5,44	TPHg TPHd 8260			
volume	11:05	1.50	128	60.9	5.61.	BTEX MTBE Metals			
2,17	11:10	2.20	124	60.7	5.72	Purging Method:			
						PVC bailer / Pump			
	COMMENT	S: color, turb	oidity, recharg			Sampling Method:			
	chear/	und.	mod, /	sheen 1	odov	Dedicated / Disposable bailer			
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН	Sample at: 11:15			
MW-4						Sample for:			
Calc. purge	10:40	0.75	202	61.7	5.75	TPHg TPHd 8260			
volume	10:45	2.5	213	60,9	5.80	BPEX MTBE Metals			
4.55	10:50	4,5	253	60,5	6,01	Purging Method:			
						(PVC bailer / Pump			
	COMMENT	S: color, turl	oidity, rechar	- 14 4	Sampling Method:				
	clear	low	mod,	ovor	Dedicated / Disposable bailer				
	/	,		,		Sample at: 10 ' 5 5			

Job No.: N	c-4	Location: 4	109 S. Fo	rduna Bi	vd,Date: 6	113/05 Tech: JL			
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН				
MW-5						Sample for:			
Calc. purge	11:20	0.75	142	59.8	5.07	TPHg TPHd 8260			
volume	11;25	2.50	137	58.4	5.10	BTEX MTBE Metals			
4.28	11:30	4.25	131	58,1	5.12	Purging Method:			
						PVC bailer / Pump			
	COMMENT	S: color, turb	oidity, recharg	ge, sheen		Sampling Method:			
	Clear/	mod.	woor	Dedicated / Disposable bailer					
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН	Sample at: 11135			
MW-6						Sample for:			
Calc. purge	12:45	0.50	80	62.6	6.01	TPHg TPHd 8260			
volume	12150	THE RESERVE OF THE PARTY OF THE	121	61.5	6.22.	BPEX MPBE Metals			
3.88	12155	4.0	123	61,3	6.23	Purging Method:			
						PVC bailer / Pump			
	COMMENT	S: color, turb	idity, recharg	ge, sheen		Sampling Method:			
	(Jear)	mod,	mod.	sheen/	no	Dedicated (Disposable bailer)			
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН	Sample at: 13,00			
MW-7			_			Sample for:			
Calc. purge	12:20	j	230	65,3	6.45	TPHg TPHd 8260			
volume	12:25	3	330	63,4	6,40	BTEX MTBE Metals			
7.69	12:30	5	333	63.0	6,40	Purging Method:			
	12135	7.70	338	62,4	6,39	PVC bailer / Pump			
	COMMENT	S: color, turb	idity, recharg		Sampling Method:				
	clear	low/ go	ood/ 57	odov	Dedicated /Disposable bailer				
				,		Sample at: 17,40			

PURGING DATA

Job No.: NO	:-4	Location: 4	09 S. For	Huna Bli	d Date: 6	6/13/05 Tech: JL		
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН			
MW-8						Sample for:		
Calc. purge	11:40	. 1	219	50.2	5,23	TPHg TPHd 8260 BTEX MTEE Metals		
volume	11:45		267	49,2	5.54	BTEX MTEE Metals		
3.07	11:50	3	260	4913	5.69	Purging Method:		
						PVC bailer / Pump		
	COMMENT	S: color, turb	idity, recharg	ge, sheen	NO	Sampling Method:		
	chean	mod.	mod.	odov	Dedicated / Disposable bailer			
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН	Sample at: 11155		
						Sample for:		
Calc. purge						TPHg TPHd 8260		
volume						BTEX MTBE Metals		
						Purging Method:		
						PVC bailer / Pump		
	COMMENT	S: color, turb	idity, recharg	Sampling Method:				
						Dedicated / Disposable bailer		
WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pН	Sample at:		
						Sample for:		
Calc. purge						TPHg TPHd 8260		
volume						BTEX MTBE Metals		
						Purging Method:		
						PVC bailer / Pump		
	COMMENT	S: color, turb	oidity, recharg	ge, sheen		Sampling Method:		
						Dedicated / Disposable bailer		
						Sample at:		



Date: 6/20/2005

Scott Ferriman Blue Rock Environmental, Inc. 535 3rd Street, Suite 100 Eureka, CA 95501

Subject: 7 Water Samples

Project Name: Former Cash Oil Fortuna

Project Number: NC-4

Dear Mr. Ferriman,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Date: 6/20/2005

Subject:

7 Water Samples

Project Name : Former Cash Oil Fortuna

Project Number: NC-4

Case Narrative

Matrix Spike/Matrix Spike Duplicate Results associated with samples MW-7, MW-4 for the analyte Benzene were affected by the analyte concentrations already present in the un-spiked sample.

Approved By:



Date: 6/20/2005

Project Name: Former Cash Oil Fortuna

Project Number: NC-4

Sample: MW-1

Matrix: Water

Lab Number : 44315-01

Sample Date :6/13/2005

Parameter	Measured Value	Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	7.8	1.0	ug/L	EPA 8260B	6/17/2005
Toluene	1.9	1.0	ug/L	EPA 8260B	6/17/2005
Ethylbenzene	15	1.0	ug/L	EPA 8260B	6/17/2005
Total Xylenes	1.7	1.0	ug/L	EPA 8260B	6/17/2005
Methyl-t-butyl ether (MTBE)	190	1.0	ug/L	EPA 8260B	6/17/2005
TPH as Gasoline	3700	100	ug/L	EPA 8260B	6/17/2005
Toluene - d8 (Surr)	98.1		% Recovery	EPA 8260B	6/17/2005
4-Bromofluorobenzene (Surr)	109		% Recovery	EPA 8260B	6/17/2005

Sample: MW-2

Matrix: Water

Lab Number: 44315-02

Sample Date :6/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/16/2005
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	6/16/2005
4-Bromofluorobenzene (Surr)	94.5		% Recovery	EPA 8260B	6/16/2005

Approved By:

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Joel Kiff



Date: 6/20/2005

Project Name: Former Cash Oil Fortuna

Project Number: NC-4

Sample: MW-4

Matrix : Water

Lab Number: 44315-03

Sample Date :6/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Methyl-t-butyl ether (MTBE)	22	0.50	ug/L	EPA 8260B	6/17/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/17/2005
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	6/17/2005
4-Bromofluorobenzene (Surr)	96.8		% Recovery	EPA 8260B	6/17/2005

Sample: MW-5

Matrix: Water

Lab Number: 44315-04

Sample Date :6/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/16/2005
Toluene - d8 (Surr)	109		% Recovery	EPA 8260B	6/16/2005
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	6/16/2005

Approved By:



Date: 6/20/2005

Project Name: Former Cash Oil Fortuna

Project Number: NC-4

Sample: MW-6

Matrix: Water

Lab Number: 44315-05

Sample Date :6/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/17/2005
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	6/17/2005
4-Bromofluorobenzene (Surr)	108		% Recovery	EPA 8260B	6/17/2005

Sample: MW-7

Matrix: Water

Lab Number: 44315-06

Sample Date :6/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Ethylbenzene	1.1	0.50	ug/L	EPA 8260B	6/17/2005
Total Xylenes	0.80	0.50	ug/L	EPA 8260B	6/17/2005
Methyl-t-butyl ether (MTBE)	6.0	0.50	ug/L	EPA 8260B	6/17/2005
TPH as Gasoline	770	50	ug/L	EPA 8260B	6/17/2005
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	6/17/2005
4-Bromofluorobenzene (Surr)	96.1		% Recovery	EPA 8260B	6/17/2005

Approved By:

Joe Kiff



Date: 6/20/2005

Project Name : Former Cash Oil Fortuna

Project Number: NC-4

Sample: MW-8 Matrix: Water Lab Number: 44315-07

Sample Date :6/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Methyl-t-butyl ether (MTBE)	5.6	0.50	ug/L	EPA 8260B	6/17/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/17/2005
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	6/17/2005
4-Bromofluorobenzene (Surr)	107		% Recovery	EPA 8260B	6/17/2005

Approved By:

Joel Kiff

Date: 6/20/2005

QC Report : Method Blank Data

Project Name: Former Cash Oil Fortuna

Project Number: NC-4

Parameter	Measured Value	Method Reporting Limit	g Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/16/2005
Toluene - d8 (Surr)	100		%	EPA 8260B	6/16/2005
4-Bromofluorobenzene (Surr)	108		%	EPA 8260B	6/16/2005
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/16/2005
Toluene - d8 (Surr)	100		%	EPA 8260B	6/16/2005
4-Bromofluorobenzene (Surr)	94.4		%	EPA 8260B	6/16/2005
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/17/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/17/2005
Toluene - d8 (Surr)	102		%	EPA 8260B	6/17/2005
4-Bromofluorobenzene (Surr)	93.3		%	EPA 8260B	6/17/2005

Parameter	Measured Value	Method Reporti Limit		Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/16/2005
Toluene - d8 (Surr)	110		%	EPA 8260B	6/16/2005
4-Bromofluorobenzene (Surr)	102		%	EPA 8260B	6/16/2005

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

Date: 6/20/2005

Project Name: Former Cash Oil Fortuna

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Number: NC-4

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	e Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.		Relative	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	44329-02	6.2	40.0	40.0	48.0	47.2	ug/L	EPA 8260B	6/16/05	104	102	1.76	70-130	25
Toluene	44329-02	< 0.50	40.0	40.0	43.0	42.1	ug/L	EPA 8260B	6/16/05	108	105	2.12	70-130	25
Tert-Butanol	44329-02	<5.0	200	200	214	214	ug/L	EPA 8260B	6/16/05	107	107	0.253	70-130	25
Methyl-t-Butyl Eth	ner 44329-02	<0.50	40.0	40.0	38.9	39.2	ug/L	EPA 8260B	6/16/05	97.3	98.1	0.856	70-130	25
Benzene	44315-02	<0.50	40.0	40.0	40.1	39.4	ug/L	EPA 8260B	6/16/05	100	98.5	1.80	70-130	25
Toluene	44315-02	< 0.50	40.0	40.0	40.8	40.1	ug/L	EPA 8260B	6/16/05	102	100	1.89	70-130	25
Tert-Butanol	44315-02	<5.0	200	200	193	197	ug/L	EPA 8260B	6/16/05	96.3	98.5	2.22	70-130	25
Methyl-t-Butyl Eth	ner 44315-02	<0.50	40.0	40.0	37.4	37.2	ug/L	EPA 8260B	6/16/05	93.5	93.0	0.572	70-130	25
Benzene	44330-03	850	40.0	40.0	877	858	ug/L	EPA 8260B	6/17/05	57.6	10.0	141	70-130	25
Toluene	44330-03	57	40.0	40.0	97.9	96.6	ug/L	EPA 8260B	6/17/05	103	99.9	3.27	70-130	25
Tert-Butanol	44330-03	44	200	200	234	231	ug/L	EPA 8260B	6/17/05	95.1	93.8	1.39	70-130	25
Methyl-t-Butyl Eth	ner 44330-03	<0.50	40.0	40.0	34.4	34.4	ug/L	EPA 8260B	6/17/05	86.0	86.1	0.119	70-130	25
Benzene	44315-04	<0.50	40.0	40.0	40.7	40.7	ug/L	EPA 8260B	6/16/05	102	102	0.00243	70-130	25
Toluene	44315-04	< 0.50	40.0	40.0	42.2	42.0	ug/L	EPA 8260B	6/16/05	105	105	0.530	70-130	25
Tert-Butanol	44315-04	<5.0	200	200	197	209	ug/L	EPA 8260B	6/16/05	98.4	104	5.94	70-130	25
Methyl-t-Butyl Eth	ner 44315-04	< 0.50	40.0	40.0	42.7	43.6	ug/L	EPA 8260B	6/16/05	107	109	2.23	70-130	25

Approved By: Joe Kiff

KIFF ANALYTICAL, LLC

Date: 6/20/2005

Project Name: Former Cash Oil Fortuna

QC Report : Laboratory Control Sample (LCS)

Project Number: NC-4

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	6/16/05	106	70-130
Toluene	40.0	ug/L	EPA 8260B	6/16/05	109	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/16/05	108	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/16/05	98.6	70-130
Benzene	40.0	ug/L	EPA 8260B	6/16/05	99.0	70-130
Toluene	40.0	ug/L	EPA 8260B	6/16/05	101	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/16/05	98.3	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/16/05	92.7	70-130
Benzene	40.0	ug/L	EPA 8260B	6/17/05	101	70-130
Toluene	40.0	ug/L	EPA 8260B	6/17/05	105	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/17/05	100	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/17/05	96.9	70-130
Benzene	40.0	ug/L	EPA 8260B	6/16/05	104	70-130
Toluene	40.0	ug/L	EPA 8260B	6/16/05	107	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/16/05	101	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/16/05	112	70-130

Approved By:

Joe Kiff

KIFF ANALYTICAL, LLC

Wire	
ANALYTICAL LLG	

2795 2nd Street, Suite 300

Davis, CA 95616

Lab: 530.297.4800 Fax: 530 297 4808 Lab No. 44315 Page 1 of 1

Project Contact (Hardcopy or PDF To): California EDF Report?								1		I	_	_	_	_	_	_		-		_	_		_		- age _	_					
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Scott Ferrix Company/Address: Blue	Roc	K Env	T.w.	R	ecomm	nended	butno	ot man	dator	y to co	omple	le this s	ection	ĸ			_		_			_				_				1	
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NC-4				Scott@bluerockenv.com									21B		- 3	809	EX	Ā			2 EC		826	TOTAL (X)			(3)	ő			
Project Name:				Sampler Signature:									(80	(6	015)	(8)	88/B	as/B	_	8	1,		EPA	TOT			I	Jse			
Former Cash	Oil F	ortum	2_	Hames Linderman										E	1801	(M8	MBI	E	Ð	809	826	S	List)	Sug	6			172	8		
Project Address: 409 S. Fortura	Blud	Sampl	ing	L		taine	er	P	rese	rvat	ive	Ma	trix	\Box	9	BTEX/TPH Gas/MTBE (8021B/M8015)	TPH as Diesel (M8015)	TPH as Motor Oil (M8015)	тРН Gas/BTEX/MTBE (8260B)	5 Oxygenates/TPH Gas/BTEX (8260B)	7 Oxygenates/TPH Gas/BTEX (8260B)	5 Oxygenates (8260B)	7 Oxygenates (8260B)	Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)	EPA 8260B (Full List)	Volatile Halocarbons (EPA 8260B)	(7421/239.2)			12 hr/24 hr/48 hr/72 hr/8 w	For Lab Use Only
Fortuna, CA				40 ml VOA	m l							l cc			BTEX (8021B)	TPH	Die	s Mot	as/B	enate	enet	genet.	gena	cav.	260B	Hak	7421			24 hr	I.
				E	SLEEVE			豆	HNO ₃	핑	NONE	WATER	SOIL		Ĕ	Ä	H	H	HG	8	0 Syso	0xyg	ox o	bad S	A 8	latile	Lead (F /	
Sample Designation		Date	Time	-	ß	+	+	-	_	_	ž	3	Š	Н	8	E E	4	4	1	n	~	10	1	3	10	3	2		++	_	_
MW-1		6/13/05	12:15	3				X		X		X							X											X	-01
MW-2		1	11:15	1				1		1		1							1											1	-02
MW-4			10:55	П						I		1																			-03
MW-5			H:35	IT				П		T		T																		11.	-04
MW-6			13:00	1	\Box	1				#	1	11							1											1	-05
MW-7			12:40	1	\Box			Ш		#	1	H							1											11	06
MW-8		1		₩		+	+	t		1	+	1.)	-		-				+					-	-	-		+	++	11	-
//iW-7		· ·	11:55	V		1		v		•		V							v											V	-07
						-			-	-	-	+														-				-	
Relinquished by: Dames Linderman 6/15		6/13	e Time Received by: Fed Ex							Remarks: Sample Receipt Temp *C																					
Relinquished by:			Date	2	Tim	e R	teceiv	ved b	y:					_	_	_					Initi	7	13H	C	_ De	nt p	00	1405 int: 1	N		
Relinquished by: Date 6/49			Time Received by Laboratory: Bold Kiff Bill to:																												
Distribution: White - Leb. Pink - O.	riginator		,													1													Form	s/coc 1	21001.ft